

Reference Document
For the Senior Officials' Meeting
30 June 2021



Energy Sector Progress Report & Work Plan (November 2020 - June 2021)

**Virtual Senior Officials' Meeting
Central Asia Regional Economic Cooperation
30 June 2021**

List of Acronyms

CAREC	Central Asia Regional Economic Cooperation
CAREM	Central Asia Regional Electricity Market
CASA	Central Asia South Asia
CATCA	Central Asia Transmission Cooperation Association
CDC	Central Dispatch Center
EIF	Energy Investment Forum
ESCC	Energy Sector Coordinating Committee
SOM	Senior Officials Meeting
TA	Technical Assistance
TAP	Turkmenistan-Afghanistan-Pakistan
TAPI	Turkmenistan-Afghanistan-Pakistan-India
TUTAP	Turkmenistan-Uzbekistan-Tajikistan-Afghanistan-Pakistan

Table of Contents

I.	EXECUTIVE SUMMARY	4
II.	KEY DEVELOPMENTS AND RESULTS	5
III.	CHALLENGES AND KEY ISSUES	11
IV.	WORK PROGRAM FOR COMING PERIOD	11
V.	DELIVERABLES FOR THE MINISTERIAL CONFERENCE	12
VI.	KEY ISSUES FOR GUIDANCE BY THE SENIOR OFFICIALS' MEETING	12
VII.	APPENDIXES.....	13

List of Tables

Table 1: CAREC 2030 Program Results Framework – Progress in the Energy Sector (2020-2021).....	5
Table 2: Energy Sector Progress by Priority Area (2020/2021)	6
Table 3: List of Deliverables for the 2021 Ministerial Conference	12

I. Executive Summary

The CAREC Energy Program achieved a number of strategic milestones during the reporting period (November 2020 – June 2021). The achievements made are a significant leap forward in the program. Overall, CAREC Energy was transformed into an ambitious, results-driven and member-led program which delivered concrete and visible results.

- **Energy Sector delivers first 2030 strategic deliverables**

The Energy Sector Coordinating Committee (ESCC) endorsed the holding of the first region-wide Energy Efficiency Awareness Campaign through a jointly developed TV and radio commercial and approved a preliminary concept for a new regional green financing vehicle. The Committee also agreed on the main features of a new Central Asia Transmission Cooperation Association (CATCA) and approved the layout and content for a new virtual CAREC Energy Reform Atlas. Moreover, the Committee committed to publish the first 10-year CAREC Energy Outlook in 2022 which is expected to be a game changer for attracting new investments to the region. All CAREC members and development partners also fully endorsed a preliminary concept for the region's first Women-in-Energy Program which includes an action plan targeted at improving employability, visibility and education of women in the energy sector.

- **New Energy Working Groups successfully established**

The scope and ambition of the CAREC Energy Strategy 2030 requires an effective division of tasks and more in-depth discussions compared to previous strategies and work programs. Therefore, six energy working groups were established (one group for each priority area identified in the CAREC Energy Strategy 2030). The working groups started operation in Q2 2021 and are responsible for producing the 2030 deliverables to be endorsed by ESCC. The groups are each led by 1-2 CAREC members. This is a key novelty in the Program allowing CAREC members for the first time to directly lead the strategy implementation and effectively sit in the driver's seat.

- **Groundbreaking virtual collaboration tool launched**

The Energy Sector launched a new CAREC Energy webplatform (www.carecenergy.org) in Q2 2021 as a one-stop-shop gateway to all issues of the energy program. It currently consists of a "Members Area" which is exclusively accessible to CAREC members and development partners only. It is designed as a collaboration platform to facilitate working group meetings and exchanges among members. It also contains a number of practical functionalities such as online meeting registration and 24/7 access to all relevant documents and latest draft deliverables. A public CAREC Energy webpage is also under development and will be launched later in the year.

- **CAREC Energy events successfully conducted**

The first round of working group meetings was successfully held on 25 and 27 May 2021 followed by the 31st ESCC meeting on 10 June 2021 at which the working group chairs, for the first time, successfully presented the deliverables and received ESCC's approval for their work. The virtual nature of the meetings allowed for a record number of participants and thus significantly increased ownership and involvement of the CAREC community (member countries and development partners) in the CAREC energy activities.

II. Key Developments and Results

A. Sector Implementation

As part of the 2030 strategic framework of the CAREC Program, long-term goals for the Energy Sector were identified and integrated in the CAREC 2030 Program Results Framework (see table 1).

The overarching goal in the energy sector is to achieve improved regional energy security and enhanced deployment of green energy until 2030. To this end, a number of flagship cross-border electricity interconnection projects (TUTAP, TAP and CASA-1000)¹ as well gas interconnection projects (TAPI)² shall be made operational by 2030 to boost regional energy trade and improve overall energy security in the region. At the same time, CAREC members shall also be able to benefit from a new and innovative financing vehicle that will facilitate implementation of green energy projects, particularly energy efficiency and renewable energy projects for a cleaner energy sector by 2030. To this end, energy consumer awareness campaigns shall be regularly held to inform and sensitize domestic consumers as well as businesses on energy efficient behavior. Table 1 summarizes the progress made during the reporting period as per the overall CAREC 2030 Program Results Framework.

Table 1: CAREC 2030 Program Results Framework – Progress in the Energy Sector (2020-2021)

Sector Outcomes & Outputs by 2030	Indicator	2017 Baseline	Progress	
			2020	2021
Enhanced regional energy security and deployment of green energy in the energy sector of CAREC countries	% renewable energy in CAREC countries	<1% renewable energy in CAREC countries	6% renewable energy in CAREC countries*	Data will be available by end 2021
Output 1: Increased regional energy trade through implementation of the TUTAP, TAP, and CASA-1000 electricity interconnection projects and the TAPI gas pipeline project	TUTAP, TAP, and CASA-1000 electricity interconnection projects and the TAPI gas pipeline project operational	0 project operational	1 project (TUTAP) partially operational	Data will be available by end 2021
Output 2: Financing vehicle for green energy projects developed and consumer awareness for energy efficiency strengthened	# of donor organizations providing finance to new CAREC green energy alliance and # of regional energy efficiency consumer campaigns held throughout the region	0 donor organizations providing finance to new CAREC green energy alliance 0 regional energy efficiency consumer campaigns held	0 donor organizations providing finance to new CAREC green energy alliance 0 regional energy efficiency consumer campaigns held	0 donor organizations providing finance to new CAREC green energy alliance 1 regional energy efficiency consumer campaign endorsed by ESCC in June 2021

* share of variable renewable energy sources (solar PV and wind) – Source: IRENA (2021), Renewable capacity statistics 2021. International Renewable Energy Agency (IRENA), Abu Dhabi

¹ CASA = Central Asia–South Asia, TAP = Turkmenistan–Afghanistan–Pakistan, TAPI = Turkmenistan–Afghanistan–Pakistan–India, TUTAP = Turkmenistan–Uzbekistan–Tajikistan–Afghanistan–Pakistan.

² TAPI = Turkmenistan–Afghanistan–Pakistan–India

B. Implementation Progress by Priority Area

The CAREC Energy Strategy 2030³, adopted on 14 November 2019 at the CAREC Ministerial Conference in Tashkent, remains the key guiding document for all CAREC energy activities. It rests on the overarching principle of “Common Borders. Common Solutions. Common Energy Future.”, and aims at achieving a reliable, resilient, sustainable and reformed energy market in the CAREC region by 2030.

To achieve the goals of the CAREC Energy Strategy 2030, the following three strategic pillars were identified:

- Strategy Pillar 1: Better Energy Security through Regional Interconnections
- Strategy Pillar 2: Scaled-Up Investments through Market-Oriented Reforms
- Strategy Pillar 3: Enhancing Sustainability by Greening the Regional Energy System

To support the above priority areas, the following three cross-cutting themes also form integral part of the CAREC Energy Strategy 2030’s focus:

- Cross Cutting Theme 1: Building Knowledge and Forming Partnerships
- Cross Cutting Theme 2: Attracting Private Sector Investments across the Energy Value Chain
- Cross Cutting Theme 3: Empowering Women in Energy

Under all strategy pillars and cross-cutting themes, a list of deliverables was agreed as as part of the CAREC Energy 2030 work plan. The following table shows all actions to be implemented between 2020 and 2030 and the progress made to date.

Table 2: Energy Sector Progress by Priority Area (2020/2021)

 Strategy Pillar 1: Better Energy Security through Regional Interconnections			
10%			
Action	Description	Performance Indicators	Progress
Realize TUTAP, TAP, and CASA-1000 electricity interconnection projects	The CAREC region’s flagship power transmission line projects connecting Central and South Asia are at various stages of implementation and shall go into operation within the strategy period.	TUTAP, TAP, and CASA-1000 projects in operation	In progress <i>see detailed progress for each project in Appendix 1</i>
Advance TAPI gas pipeline project	Ongoing negotiations for possible modalities to realize the TAPI gas pipeline shall be accelerated.	Dialogue on the implementation of TAPI project intensified	In progress <i>see detailed progress in Appendix 1</i>
Facilitate cooperation among regional transmission system operators (TSOs)	Growing electricity and gas interconnections require increased cooperation among TSOs. The establishment of a corresponding platform for regional network development planning, identification of projects of common interest, and information sharing shall be facilitated by this activity.	Central Asia Transmission Cooperation Association (CATCA) concept developed	In progress <i>A draft concept was prepared and discussed with members; finalization expected end 2021</i>

³ Asian Development Bank (ADB). [CAREC Energy Strategy 2030](#). Manila.

Identify new cross-border infrastructure projects	New cross-border gas and electricity links shall be identified to increase energy security in the region.	New regional gas and/or power interconnections identified	In progress <i>A regional Masterplan is currently being developed (see Appendix 1); new projects will in future also be identified through the yet to be established CATCA (see above)</i>
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Strategy Pillar 2: Scaled-Up Investments through Market-Oriented Reforms

50%

Action	Description	Performance Indicators	Progress
Build capacity for unbundling models and liberalization of energy markets	This activity shall support policy makers in making informed decisions when embarking on unbundling and market liberalization reforms.	CAREC Energy Reform Atlas (containing access to practical handbooks and database with study materials) established	In progress <i>Layout and content for the CAREC Energy Reform Atlas was endorsed by ESCC; A draft handbook on unbundling is currently under preparation; finalization expected by end 2021</i>
Advise on tariff-setting principles and methods of introducing tariff reform	Financial health of network companies is critical to ensuring high quality of service. This activity shall shed light on tariff design options and ways of implementing gradual tariff reform.	Handbook on Tariff Principles and Reform Options published Capacity building workshops held	In progress <i>A draft toolkit for tariff setting is currently under preparation; finalization expected by end 2021</i>
Develop options for social protection measures for vulnerable energy consumers	This activity shall assist in elaborating options for social protection measures to accompany tariff reform and shall include the development of a definition for “vulnerable consumers” to assist policy makers in identifying the appropriate target group.	CAREC Guide to Social Protection and Energy Sector Reform published	Open
Share international best practices in legal enforcement of sector reform	Sector reform requires adapting existing energy laws and creating new laws. This activity is aimed at discussing successful examples of relevant sector laws and methods of law enforcement.	Capacity building workshops held	Open



Strategy Pillar 3: Enhancing Sustainability by Greening the Regional Energy System

15%

Action	Description	Performance Indicators	Progress
Establish a joint platform for mobilizing sources of funding for emission reduction projects	For emission reduction projects to be realized, a dedicated platform shall be established for identifying and securing funding for priority projects.	CAREC Green Energy Alliance established	In progress <i>The structure for a concept note to establish a financing vehicle was endorsed by ESCC</i>

Identify suitable energy efficiency measures and track progress	Energy efficiency is a powerful tool for reducing emissions. The aim of this activity is to disseminate practical skills in implementing efficiency measures and establish a regional benchmarking tool for comparing progress and rewarding high performers.	CAREC Energy Efficiency Week held Regional Energy Efficiency Scorecard developed Capacity building workshops held	Open
Create public awareness of energy efficiency	This activity shall enhance public awareness of energy efficiency and empower consumers to engage in more conscious use of energy.	CAREC Consumer Leaflet on Energy Saving prepared Energy efficiency radio or TV commercial developed Handbook for organizing consumer awareness campaigns published	Completed <i>June 2021</i> Completed <i>June 2021</i> Open
Support in the development of renewable energy and the diversification of the energy mix	This activity is aimed at supporting CAREC members in adding renewable energy to their energy mix by providing practical guidance on the necessary pre-requisites.	Workshop on pros and cons of different renewable incentive schemes held Coping mechanisms for renewable energy intermittency developed Manual on legislative requirements for the integration of renewable energy prepared Role of gas as a transition fuel discussed	Open Completed <i>August 2020</i> Completed <i>August 2020</i> Open



Strategy Pillar 3: Enhancing Sustainability by Greening the Regional Energy System

5%

Action	Description	Performance Indicators	Progress
Develop CAREC Energy Outlook and Investment Report	This activity is aimed at providing investors and other relevant stakeholders with reliable regional data to make investment and policy decisions.	CAREC Energy Outlook and Investment Report published	In progress <i>The structure of the outlook was approved by ESCC and first case studies were elaborated</i>

Establish relevant partnerships to support the implementation of the three strategy pillars	All three strategy pillars include capacity building, institution-building, and training initiatives, which shall be implemented in collaboration with experienced partner organizations.	Partnerships with global centers of excellence in the fields covered by the strategy established	Open
	The CAREC program shall facilitate cross-regional networking and skills development of next-generation energy professionals to allow a natural sense for regional cooperation to emerge among the target group.	CAREC Young Energy Leaders initiative established	Open



Cross Cutting Theme 2: Attracting Private Sector Investments across the Energy Value Chain

0%

Action	Description	Performance Indicators	Progress
Prepare a regional investment strategy	A regional investment strategy containing recommendations for improved enabling conditions for private investments in the CAREC region shall be developed.	CAREC Energy Investment Strategy developed	Open
Hold annual CAREC Energy Investment Forum	The annual Energy Investment Forum shall continue to attract investors to the region and foresee a dedicated space for B2B meetings.	CAREC Energy Investment Forum held yearly	In progress <i>The conceptualization for the next EIF was launched; event to take place end 2021 or start 2022</i>
Provide practical support to investors to enhance their business operations in the region	This activity shall create improved enabling conditions for private investors operating in the region.	CAREC Business Advisory Council created to identify needs of private investors	Open



Cross Cutting Theme 3: Empowering Women in Energy

10%

Action	Description	Performance Indicators	Progress
Establish CAREC Women in Energy Program	This activity shall provide women in the CAREC region with the necessary tools to boost their career, build a regional network, and become more visible in the region's energy sector.	Women in Energy Summit organized Secondment program for women in energy established Educational scholarship program for women in energy facilitated	In progress <i>A draft concept for the women-in-energy program was endorsed by ESCC</i>

c. New Virtual Connectivity and Innovative Working Methods

The scope and ambition of the CAREC Energy Strategy 2030 requires an effective division of tasks and more in-depth discussions compared to previous strategies and work programs. Therefore, the CAREC Energy Program has developed new working arrangements that allow individual subject areas to be tackled in a more targeted fashion and call for more active participation of CAREC members and development partners. Thus, to increase overall quality and productivity of work, the Energy Sector Coordinating Committee (ESCC) has been transformed into a more output-oriented body with permanent sub working groups mirroring the strategy pillars.

The following working groups were established and successfully launched at the start of 2021:

- Work Stream 1 (WS 1): Infrastructure Connectivity and Energy Security
- Work Stream 2 (WS 2): Policy Reform and Liberalization
- Work Stream 3 (WS 3): Energy Efficiency and Diversification of the Energy Mix

These work streams directly cover the scope of strategy pillars 1, 2, and 3 and focus on producing their respective deliverables (see Table 2).

Similarly, individual task forces for each of the three crosscutting themes were successfully established:

- Task Force A (TF-A) on Knowledge Products, Partnerships, and People's Networks
- Task Force B (TF-B) on Private Sector Enhancement
- Task Force C (TF-C) on Women Empowerment

The working groups and task forces are each led by 1-2 CAREC members. This is a key novelty in the Program and allows CAREC members to directly lead the strategy implementation and thus sit in the driver's seat. The main responsibilities of the working group chairs consist in steering their groups, producing the respective deliverables and officially representing their groups at the ESCC to report on the progress made and seek ESCC's endorsement for the deliverables. In addition, ADB is providing a lead consultant for each working group with technical expertise on the subject areas to assist the groups in preparing their work. A detailed overview of Chairs and members of each working group can be found in Appendix 2.

The first round of working group meetings was successfully held on 25 and 27 May 2021 followed by an ESCC meeting on 10 June 2021 at which the working group chairs, for the first time, successfully presented the deliverables and received ESCC's approval for their work.

Another groundbreaking development in the CAREC Energy Program is the launch of the new CAREC Energy webplatform (www.carecenergy.org). This webplatform is designed as a one-stop-shop gateway to all issues of the energy program. It consists of a public webpage (which is still under construction) to share what the CAREC Energy Program is doing with the wider public and where it stands on the implementation of the 2030 strategy. The platform also contains a "Members Area" which is an exclusive area accessible only to CAREC members and development partners. This area represents a collaboration platform to facilitate working group meetings and exchanges. It also contains a number of practical functionalities such as online registration for meetings, joining meetings, 24/7 access to all relevant documents and latest draft deliverables and general information on the Group Chairs and members. The

“Members Area” is already functional and successfully used by the CAREC Energy Community. Log-ins and passwords were provided to all CAREC countries and development partners. The public webpage will be launched later in the year.

The new CAREC Energy web platform (www.carecenergy.org) was launched in April 2021 providing exclusive access to all relevant news, documents and planned working group meetings for CAREC members and development partners.

III. Challenges and Key Issues

The main challenge remains the global COVID-19 pandemic which has prevented the CAREC Energy Community to hold face to face meetings. Despite these circumstances, all planned meetings were successfully held (in virtual format). While it is unfortunate that personal meetings were impossible, the virtual format also brought a number of positive effects:

- No restriction in the number of participants allowed a lot more CAREC members to join our meetings compared to the face-to-face format and led to more active participation
- A much bigger number of development partners joined our meetings compared to the past with some new partners joining the energy activities for the first time
- The virtual meetings also allow for a significant reduction in carbon footprint as no travel is involved

Thus, the challenges were successfully transformed into opportunities that will continue to positively impact the work of the CAREC energy program.

IV. Work Program for Coming Period

The CAREC Energy Strategy 2030 is implemented in sequences of 2-year work programs. Thus, until 2030, there will be a total of five work programs to achieve the goals of the strategy. Currently, the program is implementing the first work program under the CAREC Energy Strategy 2030 covering the period 2020-2022. A detailed overview of the items covered in this work program including the progress made to date can be found in Table 2. During the coming period the deliverables that have been started under the first program will thus be finalized, specifically the following items:

- Concept for the establishment of a Central Asia Transmission Cooperation Association (CATCA)
- Development of an online CAREC Energy Reform Atlas
- Concept for establishment of a regional financing vehicle for green energy projects
- Radio/TV spot and consumer leaflets on energy efficient behavior
- Publication of 1st CAREC Energy Outlook
- Organization of a CAREC Energy Investment Forum
- Development of the 1st CAREC Women in Energy Program
- Organization of the 1st Women in Energy Summit

V. Deliverables for the Ministerial Conference

The following list gives an outlook of deliverables expected to be achieved until end of 2021:

Table 3: List of Deliverables for the 2021 Ministerial Conference

Deliverables	Timing (2021)	NFP/MC action
Concept for the establishment of a Central Asia Transmission Cooperation Association (CATCA) prepared	Q4	for information
Energy Efficiency Consumer Awareness Campaign held	Q3	for information
TA: Regional Cooperation on Increasing Cross-Border Energy Trading within the Central Asian Power System (see Appendix 1)	Q4	for information
TA: Access to Electricity with New Off-Grid Solar Technology in Central Asia completed (see Appendix 1)	Q2	for information
31 st ESCC Meeting held and 6 CAREC Energy Working Groups operational	Q2	for information
New CAREC Energy webplatform online	Q3	for information

VI. Key Issues for Guidance by the Senior Officials' Meeting

Alongside the adoption of the CAREC Energy Strategy 2030, the CAREC Energy Ministers signed a declaration in September 2019 in Tashkent in the framework of the 1st CAREC Energy Ministers Dialogue which contains specific commitments for the CAREC Energy Sector including the following:

- Double regional power flows until 2023
- Double solar and wind power capacity by 2023
- Double the level of energy efficiency until 2030
- Attract private investors through suitable financing vehicles
- Affordable and clean energy for all including in hard to reach areas before 2030
- Implement energy sector reform including phase out of fiscal and fossil fuel subsidies
- Gender Equality in the CAREC Energy Sector by 2030

In view of the commitments, it is suggested to hold a 2nd Energy Ministers Dialogue in 2023 to report on the progress made of these commitments and agree on new commitments as deemed necessary. The CAREC Senior Officials are kindly invited to transmit this suggestion to their governments and report back whether the idea of holding a 2nd Energy Ministers Dialogue in 2023 is supported.

VII. Appendixes

Appendix 1 –

Status on Regional Interconnection Projects, Technical Assistances and Regional Initiatives

Electricity Interconnection Projects
TUTAP
<p>Rationale: TUTAP is the acronym of Turkmenistan (TKM), Uzbekistan (UZB), Tajikistan (TAJ), Afghanistan (AFG), and Pakistan (PAK) Power Interconnection Framework. The Project exports energy power from thermal/gas (TKM and UZB) and hydro power (TAJ) rich Central Asia countries to supply AFG grid with surplus power to be exported to PAK and TAJ. TUTAP concept was identified during preparation of AFG Power Sector Master Plan (2014) and is endorsed and under implementation by the Government of Afghanistan.</p> <p>Objective: Year-round power exports from TKM to AFG and PAK primarily underpin the TUTAP power interconnection framework. TKM could also supply TAJ via Afghanistan during Tajikistan’s winter deficit period.</p> <p>Status: The first phase (\$35 million) was approved by ADB in 2003 and commissioned in 2009 with an all year power interconnection (~330 MW maximum) between Afghanistan and Uzbekistan operational since February 2009.</p> <p>The second phase (\$47 million) was approved by ADB in 2007 and commissioned in 2011 with a summer only power (300-450 MW) interconnection between Afghanistan and Tajikistan operational since October 2011.</p> <p>The third phase (\$140 million) was approved by ADB in 2012 and is under implementation for a 300 MW power interconnection between Afghanistan and Turkmenistan. The line will have a capacity to transmit up to 1000 MW power. Construction of the 500-kV line and 3 substations in AFG is ongoing since early 2016 while the TKM portion of the line was completed in mid-2016. The third phase is expected to be completed by end 2020.</p> <p>The fourth phase (\$200 million) was approved by ADB in December 2015 to extend the AFG-TKM interconnection through 500-kV transmission interconnection until Pul-e-Khumri in north-east AFG, where power interconnections from Uzbekistan and Tajikistan into AFG meet and converge with TKM interconnection. The contract for this phase was awarded in October 2017 and is expected to be completed in mid 2021.</p> <p>Next Steps: Once the interconnection components are completed, trade among four countries will start. Interconnection with Pakistan is still under discussion. With generation surplus of atleast 15000 MW in Pakistan for the medium term [2020-2028] and additional 15,000 coming online in the next 5 years, the Government of Pakistan wishes to explore opportunities to export power to Afghanistan through a 220-kV transmission line from CASA convertor in Nowshera in Pakistan to Jalalabad in Afghanistan where Afghan grid meets through a 70 km line. Pakistan also wishes to explore export potential to Tajikistan and Kyrgyz Republic in winter using CASA network and convertors.</p>

TAP

Rationale: TAP is the acronym of Turkmenistan-Afghanistan-Pakistan power interconnection project. The project envisages connecting Turkmenistan power exports into Afghanistan and Pakistan through TUTAP (Phase1) and through Southern Corridor (Phase 2).

Objective: The proposed TAP power interconnection project is under discussion among the participating countries, with a potential capacity of 2,000 MW. An MOU among the 4 heads of governments was signed in December 2015 and a Joint Ministerial Statement, confirming agreed scope and timelines containing 2 phases. The first phase will use the existing or financed infrastructure under the TUTAP to export Turkmen power to Afghanistan and Pakistan. Options will be explored to especially optimize and use any excess power or transmission capacity during the winter months (October – April) through integration with the CASA system (see details on CASA below). The requirement of additional ancillary infrastructure to complement TUTAP and other planned infrastructure will be investigated. The second phase will transfer power from from Serhetabad (TKM) / Torghundy (AFG) border into Herat, Kandahar and Spin Boldak in Afghanistan and export to Chaman and Quetta in Pakistan.

Status: TKM is strengthening its network and generation capacity to export power into AFG and PAK. Due to security challenges in AFG and excess capacity in PAK, tariff negotiations are currently put on hold among the participating countries. PAK has communicated that the cost of delivered energy should be less than the basket generation cost (9 us cents / kWh).

The project is planned to be completed in three phases. The 1st phase involves the construction of a 220kV double-circuit transmission line from Mary c., Turkmenistan to Herat c., the Islamic Republic of Afghanistan. The 2nd phase involves the construction of a 220kV double-circuit transmission line from Herat c., the Islamic Republic of Afghanistan to Kandagar c., the Islamic Republic of Afghanistan. The 3rd phase involves the construction of a 550kV DC line from Mary c., Turkmenistan to Quetta province, the Islamic Republic of Pakistan, and converting substations at both ends. Turkmenistan has attracted foreign investments to build a 220kV double-circuit transmission line from Mary c. power plant to the border with the Islamic Republic of Afghanistan. The Government of the Islamic Republic of Afghanistan is continuing negotiations with a foreign investor, and the relevant contracts are expected to be signed by the end of 2021. The 1st phase of the project is scheduled to be completed by the end of 2021. Construction of the 2nd phase is expected to begin in the second half of 2021 – the first half of 2022. Negotiations on the beginning of the 3rd phase are continuing.

Next Steps: ADB as project secretariat will continue to support the TAP Project through: (i) analytical studies for systems stability, reliability, and grid interconnection; (ii) studies for regulatory and legal, technical, commercial, and systems dispatch; (iii) Project assessment, including Project feasibility, technical design, and preparation; (iv) coordinate project planning & implementation and provision of financing; (v) facilitation of energy trade negotiations among the 3 countries; and (vi) finalizing of an implementation roadmap, among others studies as agreed and deemed necessary. In the next tripartite meeting, the Government of Pakistan proposed to discuss the export potential to Afghanistan through the TAP Network. However, with private sector expected to build the Afghan portion of TAP at a much higher cost, the landed cost of Turkmenistan power in Pakistan will be more than the average basket generation cost [\$9.5 cents]. This currently becomes unviable for Pakistan to include it in its generation mix.

CASA-1000

Rationale: The World Bank Group is helping the governments of four countries to develop a cross-border energy market that will contribute to meeting the growing energy demand in Afghanistan and Pakistan, by transferring surplus summer power from the Kyrgyz Republic and Tajikistan. This is part of the broader effort to build the

trade, transport, and energy links needed for economic development and poverty reduction. By putting in place the commercial and institutional arrangements and the transmission infrastructure, the World Bank Group-supported Central Asia-South Asia Regional Electricity and Trade Project (CASA-1000) is the first step toward creating a regional electricity market (Central Asia-South Asia Regional Electricity Market – CASAREM) linking Central Asia with the broader region and is also promoting energy security and economic development in the four countries part of the project.

Objective: The Project consists of three components: (i) Construction of High Voltage Transmission Infrastructure, including high voltage direct current transmission line (1382 km in total length comprising of 599km of HVAC and 783km of HVDC) and converter stations, high voltage AC transmission interconnection between Kyrgyz Republic and Tajikistan and grid reinforcement in Tajikistan; (ii) Technical Assistance and Project Implementation Support for project implementation and technical assistance required to the four country-specific Project Implementing Agencies and the IGC Secretariat; (iii) Community Support Programs in the four countries during the construction period to create a supportive environment for project implementation and improve livelihoods of communities living along the corridor. The HDVC convertor stations will form the backbone of the new cross-border energy market, enabling the trade of 1300MW of clean electricity between the regions. The World Bank is financing this project of US\$1.1 billion total cost with the Islamic Development Bank, USAID, European Bank for Reconstruction and Development, European Investment Bank and UK Department for International Development. The International Finance Corporation (IFC), a member of the World Bank Group, is helping structure and competitively tender a series of public-private partnerships (PPPs) to attract key private sector players in electricity transmission. These include engineering, procurement, and construction (EPC) contracts for vital transmission infrastructure.

Status: All the EPC contractors have started construction activities on site in all four countries, including at the Nowshera site in Pakistan. This is a major milestone that is now enabling all the four countries to start integrating the schedules of the respective contracts to determine the integrated schedule for the entire project. CASA countries are also putting in place the commercial and operational arrangements for project operation stage.

Next steps: The CASA-1000 Project has shown good progress thanks to the CASA Countries’ strong political commitment and ownership of the project with unwavering support by development partners and is expected to become operational in 2023/2024.

Gas Interconnection Projects

TAPI

Rationale: Suboptimal regional gas and energy trade markets contribute to limited economic growth, increased poverty (possibly leading to social unrest) and exacerbated greenhouse gas emissions in the TAPI region. The Project will help improve regional energy trade, as it will build and support requisite natural gas supply and transportation capacity across the TAPI countries, while expected to cause an overall Project related reduction in greenhouse gas (GHG) emissions due to the anticipated substitution of currently used heavy fossil and solid fuels in Afghanistan, Pakistan and India. Its realization will also help address several issues causing these suboptimal regional markets by improving cross-border cooperation among multiple stakeholders and resolving some of the security issues in Afghanistan and Pakistan, as well as by improving institutional capacity to implement complex projects. It will attract and catalyze investments and financing that would otherwise be unavailable and, ultimately, help boost inclusive economic growth in the region.

Objective: The Project will extend approximately 1,600 kilometers (km), from the Turkmenistan-Afghanistan border to the Pakistan-India border. The Project comprises the procurement, installation and operation of the pipeline and related facilities (without any compressor stations) over the entire 1,600 km length within Afghanistan and Pakistan. Ahead of Phase 1, State Concern “Turkmengas” (Turkmengaz) has nearly completed 214 km upstream pipeline in Turkmenistan from the Galkynysh gas field to the Turkmenistan -Afghanistan border. In addition, it has initiated its advanced procurement process for two compressor stations in Turkmenistan to be

installed during Phase 1 of the TAPI Project. The 10 km downstream pipeline from the Pakistan-India border to Fazilka in India is also to be installed by GAIL Limited (India) during Phase 1.

Once Phase 1 is operational, the TAPI pipeline is expected to transmit 11 billion cubic meters (bcm) of gas annually from Turkmenistan to Afghanistan, Pakistan, and India, about one third of its annual design capacity of 33 bcm, realized with the construction of six compressor stations (four in Afghanistan and two in Pakistan) planned during Phase 2. The Project will allow Turkmenistan to diversify its gas export markets over a commercial operations period of 30 years. The CAREC Energy Strategy 2030 sees the TAPI pipeline as one of the key links in the inter-energy relationship among CAREC countries. Overall, the Project will have a transformational impact on regional cooperation and will also support other initiatives aimed at increasing growth and economic stability in the region.

Role of the Asian Development Bank (ADB): ADB has been involved in the Project since 2001 by providing technical assistance to conduct preliminary Project due diligence and to facilitate the negotiation and signing of the key TAPI Project framework agreements. In parallel, ADB organized and attended the TAPI Project Technical Working Group meetings and performed the role of Secretariat of the TAPI Project Steering Committee. From 2013 to 2016, ADB acted as transaction advisor to the four TAPI state gas companies Turkmengaz, Afghan Gas Enterprise, Inter State Gas Systems (Private) Limited, and GAIL, resulting in: (i) the production of a technical feasibility study; (ii) incorporation of the TAPI Pipeline Company Limited (TPCL) in November 2014; and (iii) the drafting, negotiation and signing of the TPCL Shareholders Agreement in December 2015 and the TPCL Investment Agreement in April 2016, marking the successful completion of ADB's advisory mandate. From 2016 to 2019, ADB continued providing support through providing feedback on outputs produced by TPCL's consultants / advisors in relation to the Project's environmental and social safeguards, procurement, technical and financial workstreams. Since mid-2019, ADB has regained a pivotal role in support of TPCL's efforts to prepare, and raise financing for the TAPI Project.

Status: Following the February 2018 TAPI Steering Committee meeting, ADB confirmed its support for the TAPI Project. ADB received formal requests for such support from Turkmenistan, Afghanistan, and Pakistan (India is not seeking ADB financing support). In May 2020, ADB Management approved the TAPI Project Concept Paper (PCP) and Transaction Technical Assistance Report (TRTA). Subject to ADB ascertaining the Project's viability and, otherwise, meeting of ADB policy requirements for safeguards, governance, procurement, etc., ADB's PCP proposed up to \$500 million in sovereign loans (Turkmenistan and Pakistan) and grants (Afghanistan) for their equity participations in the TAPI Pipeline Company Limited (TPCL) plus a Turkmenistan backed ADB sovereign partial credit guarantee (PCG) of up to \$500 million on behalf of commercial loans to TPCL. Since PCP approval, however, ADB indicated that it may consider providing 100% financing support (\$116 million each) for Afghanistan and Pakistan. Based on 80% ADB PCG cover on average over the commercial loan life, the loan principal may amount to approx. \$617 million. The proceeds of ADB's financing support could amount to approx. \$1,150 million and will solely be applied to the re-procured engineering, procurement, and construction (EPC) contract for the AFG section of the TAPI pipeline.

The approved ADB TRTA budget is \$2.15 million. ADB's preliminary due diligence had identified several critical issues in the followed procurement processes that are particularly pertinent to the EPC contract for Afghanistan. TPCL agreed to re-procure this contract, having recently completed the shortlisting of qualifying EPC contractors and expecting to launch the formal tender shortly. Other ADB due diligence workstreams have also progressed, resulting in ADB's public disclosure of the Project's Environmental and Social Impact Assessments for Afghanistan and Pakistan in February 2021 and the ongoing assessments in the areas of the Project related security concept and measures, land acquisition and rehabilitation frameworks and documents, community development (including gender equality), GHG emissions, technical feasibility, etc.

Next Steps: Although the ADB Board approval and the Project's financial close are currently still scheduled in Q4 2021 and Q1/Q2 2022, respectively, achieving these targeted milestones increasingly seems unlikely due to delays, including COVID-19 related delays and delays in the successful conclusion of the Gas Sales and Purchase

Agreements between Turkmengaz and its buyers in Afghanistan, Pakistan, and India. ADB expects to receive updates for these timelines following the TAPI country Inter-Ministerial and TPCL Board meetings currently scheduled to take place in mid-June 2021 (pending confirmation from the TAPI governments). Based on these updated timelines, ADB will plan its new Project processing timeline to seek its necessary internal and external approvals and initiate the remaining due diligence work streams, including on the Project's financial management and commercial, financial, and economic viability, etc.

Technical Assistance Projects

Regional Cooperation on Increasing Cross-Border Energy Trading within the Central Asian Power System (TA 9709, TA 9717, TA 9823)

Objective: The project supports an increase in regional power trade among Afghanistan, Kazakhstan, the Kyrgyz Republic, Tajikistan, Uzbekistan, and Turkmenistan by (i) modernizing the Coordinating Dispatch Center (CDC) Energiya, which coordinates power flow between the national electricity grids of the Central Asian power system (CAPS), to enhance its technical capacity; (ii) identifying the technical obstacles to power trade for CAPS, and proposing and coordinating solutions to overcome them for each country; and (iii) supporting the expansion of CAPS membership and seeking new markets.

Progress 2020/2021: (i) The CDC needs assessment was completed, and its functions were reconfirmed. An Enterprise Data Management System (EDM) was designed. The contractor to procure and install EDM system was hired in 2021 and the works are ongoing with expected completion of phase I in 2022. (ii) Data collection was completed, and an interim report was prepared and discussed in 2020. The interim report includes preliminary scenarios for regional trade in 2023 and a first estimation of economic benefits. Assumptions have been updated to include irrigation restrictions, TKM strategic decision to only export and to consider countries' commitment for GHG emissions. In June 2021 scenarios for regional trade and economic benefits in 2023-2030 were presented with updated assumptions. The TA is expected to be completed by 2021 end with an updated regional power sector master plan and identification of regional power trading bottlenecks. (iii) Configurations for connecting Afghanistan to CAPS were discussed and a preliminary roadmap was developed after extensive network studies. Comments on the roadmap were addressed in Q3 2020 and final roadmap will be available in 2021 together with market analysis for prospective trade outside CAPS.

Access to Electricity with New Off-Grid Solar Technology in Central Asia (TA 9168)

Objective: The project expanded understanding of off-grid technology in the CAREC countries through a pilot project covering Afghanistan, Kyrgyz Republic and Tajikistan. The technical assistance demonstrated the proof of concept of the technical feasibility of a plug and play 12-volt DC solar kit with a range of DC appliances. The

Progress 2020/2021: The TA contributed to developing a unique innovative solution with 12 Volt DC and battery-based product that the government plans. The TA delivered many awareness raising activities, technology development, and training, which overall received positive public interest in the pilot countries. There were features on national TVs and local newspapers which covered the pilot as viable alternative to grid electricity. The President of TAJ mentioned this pilot project in his speech during his visit to the Murgab region. The Government of Afghanistan included a project for ADB financing to scale-up solar off-grid projects in Afghanistan where about 66% of the population is living without electricity. The Ministry of Rural Rehabilitation and Development identified that many families—about 3.2 million people in 470,000 households—with no access to modern electricity are situated in border district areas of Afghanistan. These border areas are unlikely to receive access to energy through conventional grid-connected power before 2025. The TA acted as a CAREC platform for knowledge delivery on off-grid energy and its viability as an alternative solution for energy access. The effective use of social media amplified the overall impact. The TA was successfully completed in April 2021.

Regional Initiatives

CAREM

Rationale: The Central Asia Regional Electricity Market, or CAREM, will assure the region's long-term energy security and economic growth and also serve as a platform for an expanded Central Asia-South Asia regional power market. Currently, the Central Asian countries pursue self-sufficient power supplies, while more cost-effective options based on regional power trade remain largely underutilized. An improved regional power system would address these issues. Recent trends towards greater bi-lateral energy trade are hopeful signs that suggest the time is right for a regional power market. CAREM is wholly consistent with the CAREC Energy Strategy 2030. CAREM will provide the basis for greater energy security that is consistent with Pillar 1 of the Strategy.

Objective: The ultimate goal of CAREM is an integrated power market with effective regional institutions that ensure fair and consistent transactions for all countries; common standards for performance; fair and non-discriminatory pricing; and full access to the power grid.

Status: Over the past year, USAID has entered into memorandums of understandings with three Central Asian countries, including Kazakhstan, Tajikistan and Uzbekistan, as well as a work agreement with the Kyrgyz Republic for CAREM. USAID has kicked off its support for CAREM by conducting numerous workshops with government representatives from all five Central Asian countries, including the regional system operator, CDC-Energia.

USAID initiated the formation of three Working Groups: Technical, Market and Legal/Regulatory. Over the course of the past six months, there have been a number of workshops that have focused on market benefits, and the technical aspects and common vision for regional transmission system with cross-border capacities.

- The Market Working Group participated in a workshop on CAPS Market Alternatives and Methodology for Evaluating Economic Benefits from Regional Trade. The working group participants emphasized the importance of the workshop, highly regarded the effectiveness and quality of discussions.
- The Technical Working Group participated in the first meeting with aim to shape a common vision on the current state of the regional transmission system infrastructure focusing on the cross-border capacities and main internal transmission bottlenecks.
- The CAREM team continues providing Central Asian governments with the tools to improve their system operations, in order to support increased regional energy trade and cross-border flows and held an internal coordination meeting with the technical and market teams to discuss the draft Procedures to Calculate Cross-border Capacities.
- The team is finalizing the CAREM Market Design report was drafted in project year 2 and proposes a structure for the future regional electricity market. The report summarizes a number of concepts included in previous reports, including the Market Model Alternatives, CAREM Roadmap and Central Asia Regional Transmission Tariff Methodology. The report's preliminary recommendations were shared with CAREM WG members during the CAREM Market Design workshop held on March 4, 2021.
- CAREM developed a long-term roadmap that contains key milestones to achieve a fully functional regional electricity market. It follows four parallel workstreams in areas where countries seem to be facing more challenges to increase volumes of bilateral power exchanges: technical, legal/regulatory, commercial and technical capacity.

- The Roadmap and Action Plan was reviewed by the working group members and comments and will be presented during.

Next Steps:

- The CAREM Deputy-Ministerial Meetings on June, 22, 2021.
- Continue support for the development of a regional market by providing technical assistance in support of a regional council and working groups
- Complete analyses of national transmission systems and provide recommendations on the expansion and rehabilitation
- Support the establishment of agreements among national transmission system operators
- Support establishment of regional trading platform
- Support power sector reforms for improved governance and transparency, and financial sustainability
- Support market-based pricing for cost recovery tariffs

Appendix 2 –
 CAREC Energy Working Group Chairs and Members
 (as of June 2021)

Country	Member in all groups	Work Streams			Task Forces		
		WS 1 Infrastructure Connectivity & Energy Security	WS 2 Policy Reform & Liberalization	WS 3 Energy Efficiency & Diversification of the Energy Mix	TF-A Knowledge Products, Partnerships & People's Networks	TF-B Private Sector Enhancement <i>To be chaired by CAREC Presidency Country holding the EIF</i>	TF-C Women Empowerment
Afghanistan	x	Member	Member	Member	Member	Member	Ms. Samira Sayed-Rahman Chair
Azerbaijan	x	Member	Member	Mr. Asaf Rzayev Co-Chair	Member	Member	Member
Georgia	x	Member	Member	Ms. Margalita Arabidze Co-Chair	Member	Member	Member
Kazakhstan	x	Ms. Gulnara Bakhtybaeva Co-Chair	Member	Member	Member	Member	Member
Kyrgyz Republic	x	Member	Member	Member	Member	Member	Member
Mongolia	x	Member	Member	Member	Member	Member	Member
Pakistan			Member	Member			
People's Republic of China		Member		Member			
Tajikistan		Member	Member	Member			
Turkmenistan		Member		Member			
Uzbekistan			Mr. Bakhrom Umarbekov Chair	Member		Member	